



---

## Science Mission Directorate Planetary Science Division

# Archiving Datasets with the Planetary Data System

William P. Knopf  
PDS Program Executive  
202-358-0742



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Topics

---

- Science Data Management Policies
- Overview of Planetary Data System
- Planetary Data System Organization
- Planetary Data System Services
- Considerations for Proposers



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Science Data Management Policies

---

- **Key Objectives**

- Preserve and utilize space science data as a National resource
- “Open” Data: data ultimately belongs to science community and public
- Appropriate and balanced allocation of resources for data issues through mission life cycle

- **Requirements**

- Projects develop a Project Data Management Plan that is closely coordinated with the appropriate PDS Science Discipline Node(s) *<as determined by the PDS Management Council>*
- **Timely** delivery of science data products to the PDS for open availability
- Data Analysis Programs (DAPs) must utilize data residing in the PDS



# **Mars Scout-11 Kick Off**

## **Archiving Data with the Planetary Data System**

### **Overview of the Planetary Data System**

---

- PDS is the official planetary science data archive for the NASA Science Mission Directorate's Planetary Science Division
- PDS is chartered to ensure that planetary data are archived and available online for the scientific community
- PDS is a distributed system designed to optimize scientific oversight (through close PDS/Project coordination and PDS Peer Reviews) in the archiving process
- The PDS has been in existence for ~16 years
  - evolved from an offline media archive to a distributed online system, and is still evolving...



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Planetary Data System Organization

---

PDS is a close federation of Nodes with both **Science** and **Support** functions

- **Science** functions are organized by discipline and include:
  - data ingestion
  - data distribution
  - interfacing with data suppliers and users to ensure that:
    - maximum science value is captured within the archive
    - the archive is of greatest utility to both immediate and long-term science users
  - Immediate users, by their use of the system, help PDS understand if the services and data sets are of optimal use to the community. These users have the benefit of an active instrument team to whom comments and replies can be passed, if needed, allowing the archive to be modified.
  - Long-term users need final, stand-alone archives because the instrument experts may no longer be available.



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Planetary Data System Organization

---

PDS is a close federation of Nodes with both **Science** and **Support** functions

- **Support** functions include system engineering, basic development and cross-discipline support such as:
  - libraries, procedures, and standards for data preparation, submission, and management
  - common tools for data manipulation
  - an infrastructure that facilitates
    - easy navigation within and access to holdings throughout the federation
    - simple system-wide maintenance and upgrades
- The Engineering Node focuses primarily on Support; the other Nodes focus primarily on Science, but all have at least test bed and review tasks



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Planetary Data System Organization

---

- **Management Node (GSFC)** - Provides Program Management, budget support – *Ed Grayzeck*
- **Science Discipline Nodes** - Discipline Scientists provide expertise to interface with Flight Program Scientists. Science Discipline Nodes are:
  - Atmospheres (NMSU) – *Reta Beebe*
  - **Geosciences (Washington U) – Ray Arvidson – Mars Lead Node**
  - Imaging (USGS Flagstaff/JPL) – *Lisa Gaddis*
  - Planetary Plasma Interactions (UCLA) – *Ray Walker*
  - Rings (SETI Institute) – *Mark Showalter*
  - Small Bodies (U of Maryland) – *Mike A'Hearn*
- **Support Nodes** – Provide support services to Science Discipline Nodes and/or the Science Community
  - Engineering Node (JPL) – *Dan Crichton*
  - Navigation Ancillary Information Facility (JPL) – *Chuck Acton*
  - Human Interface Development (ARC) – *Jay Trimble*



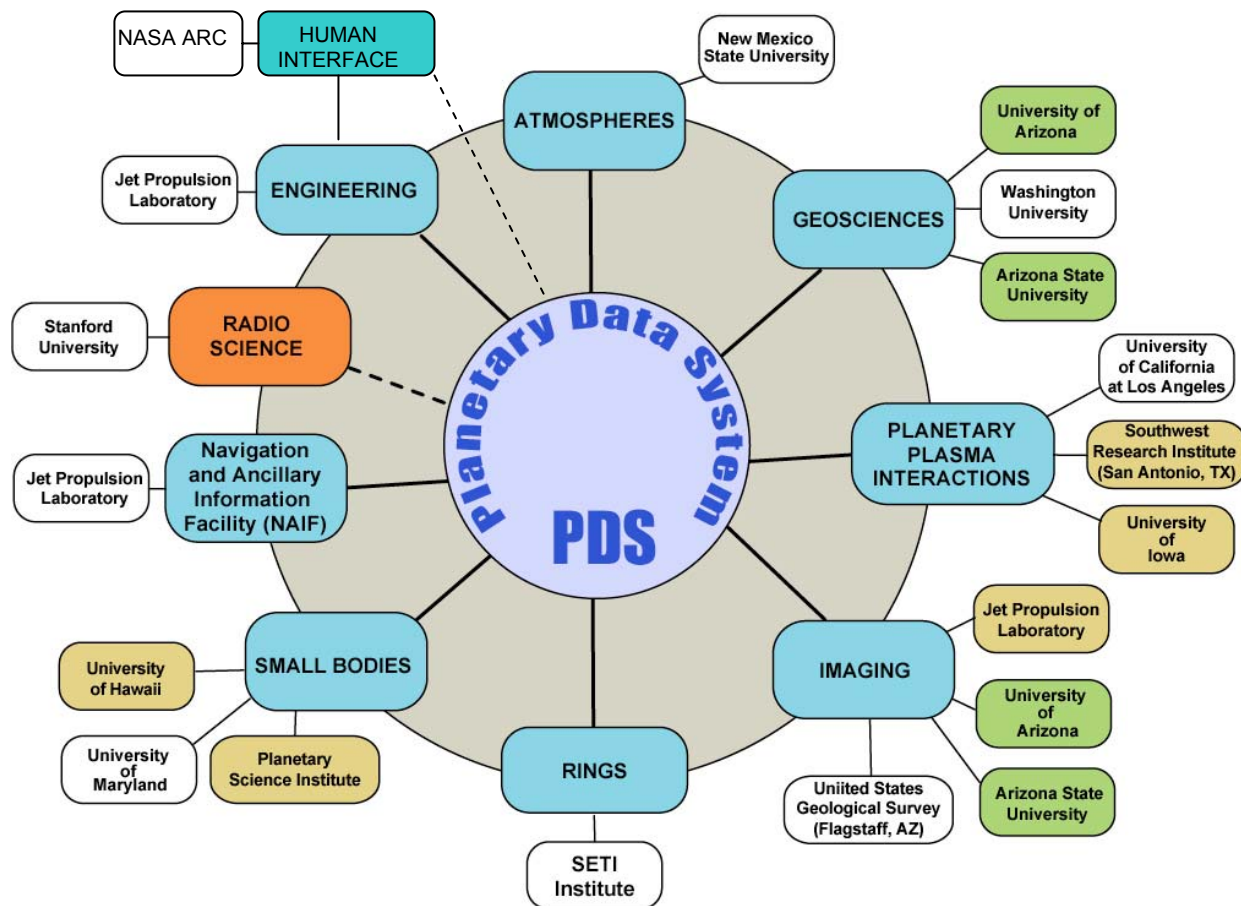
# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

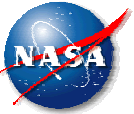
### Planetary Data System Organization

#### NODES/SUBNODES/DATA NODES

Function







# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Planetary Data System Services

---

- PDS establishes, maintains, and enforces standards for high quality data archives
- PDS works with missions to create complete data sets (calibrations, documentation, metadata)
  - PDS develops and maintains a suite of tools to help data producers create and validate archive-quality data products
  - PDS personnel can be funded by the mission to perform mission archiving tasks
- PDS provides expert assistance to the scientists who use the archives
- PDS ensures the viability of planetary data that might otherwise be lost



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Considerations for Proposers

---

- *Early* involvement/interface with PDS is both necessary and critical to satisfy the required product delivery/pipeline
- Lead PDS Discipline Node scientists determine which PDS standards and formats the Projects must follow for each data set
- Data providers should strive for delivery of higher order, usable data products to the PDS
- Delivery of data (raw and calibrated) to the PDS must occur within six months of collection
  - Future goal is to make every Project Ground Data System/Science Data System completely PDS compliant
- Archiving with PDS is a requirement, not an option...



# Mars Scout-11 Kick Off

## Archiving Data with the Planetary Data System

### Considerations for Proposers (continued)

---



- PDS is continually evolving. Check back for updates → <http://pds.nasa.gov>
- Proposers Archive Guide (PAG) provided to assist in archive costing and interfacing with the PDS → <http://pds.nasa.gov/documents/pag/pag.pdf>
- Cost Model available for estimates (under Documents)
- Latest standards, formats and sample archive plans also available
- Please contact PDS representatives if you have any questions